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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,481	08/05/2003	Christi Kay Madsen	MADSEN 27	6810
47394	7590	12/23/2004	EXAMINER	
HITT GAINES, PC LUCENT TECHNOLOGIES INC. PO BOX 832570 RICHARDSON, TX 75083			STEIN, JAMES D	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 12/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/634,481

Applicant(s)

MADSEN, CHRISTI KAY

Examiner

James D. Stein

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08/05/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 08/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,943,636 to Baldwin et al.

Baldwin discloses a related variable optical delay line comprising a plurality of binary switchable paths 51 and 52, 53 and 54, etc., in Fig. 1. A plurality of binary switch devices 32-42 are configured so as to "provide signal delay paths selected from a sequence of incrementally differing delays (52, 54, 56, 58, 60, etc.)," as claimed by applicant. The binary switch and signal delay path relationship is more specifically described by Baldwin: "It will be seen that the lower path 10 contains the short fibers 51, 53, 55, 57, 59 and 61 while the upper path 12 contains the longer fibers 52, 54, 56, 58, 60 and 62 of different lengths so as to create the relative time delays. The switches 32-42 are designed with two conditions or states of interest: in one state they direct input light straight through the upper or lower paths or, in a different state, they direct the light to cross over with the lower input going to the upper output or the upper input going to the lower output (col. 3 line 35)." Furthermore, said lower path 10 functions as a "continuously variable optical delay line," as claimed by applicant, so as to add only a

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specific "continuous" delay regardless of any variable delay that has been applied by the "incremental delay line" 12 via said binary switches 32-42. In this manner, "a large number of time delays are formed by setting different optical switches in the straight through or crossover condition (binary) [col. 4 line 27]." Therefore, this teaching anticipates that of applicant.

With regard to claim 7, in addition to the rejection of claim 1 discussed above Baldwin teaches said variable optical delay line to comprised of an optical fiber (see above discussion). Optical fibers are *inherently* all pass filters, as they do not attenuate any frequency component of an optical signal, but rather act as a guide to transmit said optical signal therethrough. This is analogous to how a segment of wire in an electrical system may be called an all pass filter (passes all frequency components of a given electrical signal).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baldwin.

With regard to claims 2-6, Baldwin suggests that within the scope of the invention said loops may be adjusted so as to provide a variety of delay increment arrangements

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for said incremental variably delay line 12: "While fiber loops 52-62 have been shown to be all of different lengths, some or all of them may all be of the same length or they may be progressively shorter. *The combinations can be made up in any desired arrangement and the lengths chosen to provide the desired time delays* (col. 4 line 30.)"

Although Baldwin does not specifically disclose the possible delay increments limited by applicant in claims 2, 3, 5, and 6, said possible delay increments and ranges are rendered obvious as a matter of design choice, since applicant has not disclosed that said delay increments and ranges solve any stated problem or are for any particular purpose. It would have been obvious to one of ordinary skill in the art to modify the invention as taught by Baldwin to include such delay increments and ranges for said incremental variable delay line 12, so as to provide for an assortment of delay possibilities. Such would be preferred in order to allow the device to be used in a broad range of applications requiring different delay configurations. Furthermore, it has been held that discovering optimum or working ranges involves only routine skill in the art. In *re Aller*, 105 USPQ 233.

Further regarding claim 4, in addition to the rejection of claim 3 discussed above, Baldwin teaches one specific example of a delay increment and range for the device consistent with that limited by applicant: "One particularly preferred arrangement is to make loop 54 long enough to produce twice the delay of loop 52, loop 56 long enough to produce twice the delay of loop 54, loop 58 long enough to produce twice the delay of loop 56, loop 60 long enough to produce twice the delay of loop 58 and loop 62 long enough to produce twice the delay of loop 60, in *binary fashion* (col. 4 line 34)." This


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teaching obviates applicant's limitation of "a switchable binary fixed delay of (0,T) serially connected to a switchable binary delay of (0,2T), where T is the delay increment." The relationship is illustrated when one labels the delay of loop 52 as "T".

35 Claim 7 is ^{additionally} rejected under 35 U.S.C. 103(a) as being unpatentable over Baldwin as applied to claim 1 above, and further in view of applicant's admitted prior art, U.S. Patent No. 6,289,151 to Kazarinov et al. Baldwin discloses the claimed invention except for said continuously variable optical delay line comprising an "all pass filter." Kazarinov teaches the implementation of all pass filters in optical delay devices: "The all-pass optical filter of the present invention is optionally suitable for delaying the transmission of optical pulses in time. The all-pass optical filter delays the transmission of optical signals by lengthening the time for optical pulses to be transmitted therethrough (col. 4 line 13)." Therefore, at the time of the invention one would have found it obvious to modify the device at taught by Baldwin to include an all pass filter, as all pass filters are well known in the art to have a frequency independent amplitude response, allowing for the delayed signal to maintain all components of the frequency spectrum at the same level as the original input signal.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: U.S. Patent No. 4,934,777 to Jou et al and U.S. Patent No. 5,125,051 to Goutzoulis et al, which disclose a related optical delay lines.

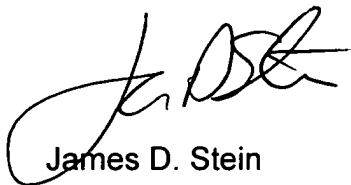
 This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James D. Stein whose telephone number is (571) 272-2132. The examiner can normally be reached on M-F (8:00am-4:30pm).

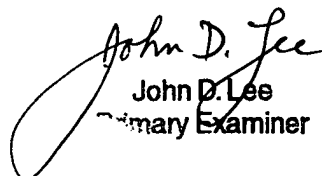
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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James D. Stein



John D. Lee
John D. Lee
Primary Examiner